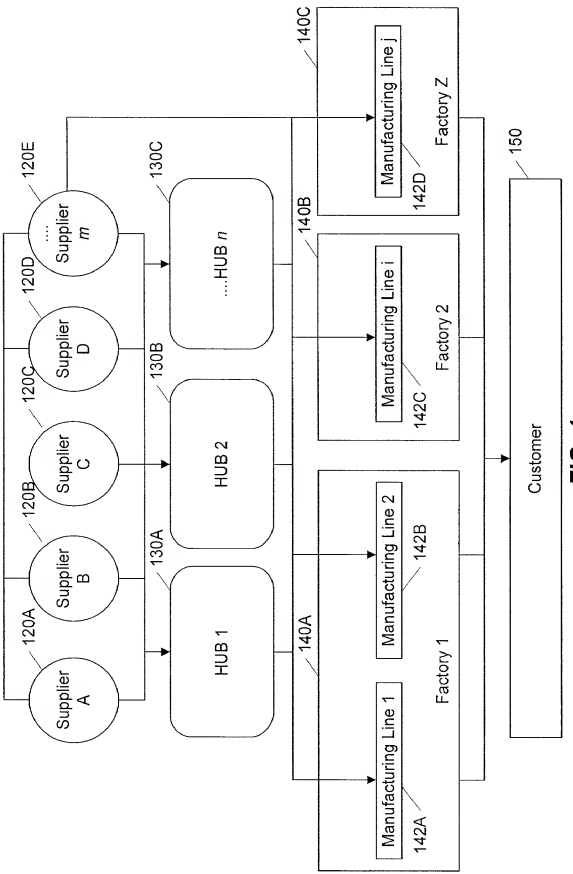
Supplier A
120A
Supplier B
120B
Supplier C
120C
Supplier D
120D
..... Supplier m
120E
HUB 1
130A
HUB 2
130B
....HUB n
130C
Factory 1
140A
Manufacturing Line 1
142A
Manufacturing Line 2
142B
Factory 2
140B
Manufacturing Line i
142C
Factory Z
140C
Manufacturing Line j
142D
Customer
150

FIG. 1

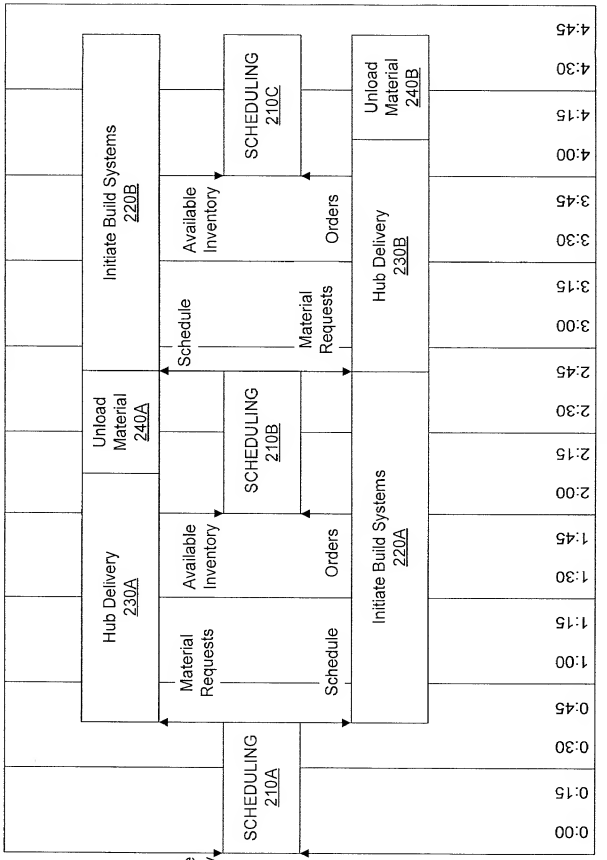
0:00
0:15
0:30
0:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30
2:45
3:00
3:15
3:30
3:45
4:00
4:15
4:30
4:45
Available Inventory
Orders
SCHEDULING 210A
Material Requests
Schedule
Initiate Build Systems 220A
Hub Delivery 230A
Available Inventory
Orders
SCHEDULING 210B
Material Requests
Schedule
Initiate Build Systems 220B
Unload Material 240A
Hub Delivery 230B
Available Inventory
Orders
SCHEDULING 210C
Unload Material 240B

FIG. 2

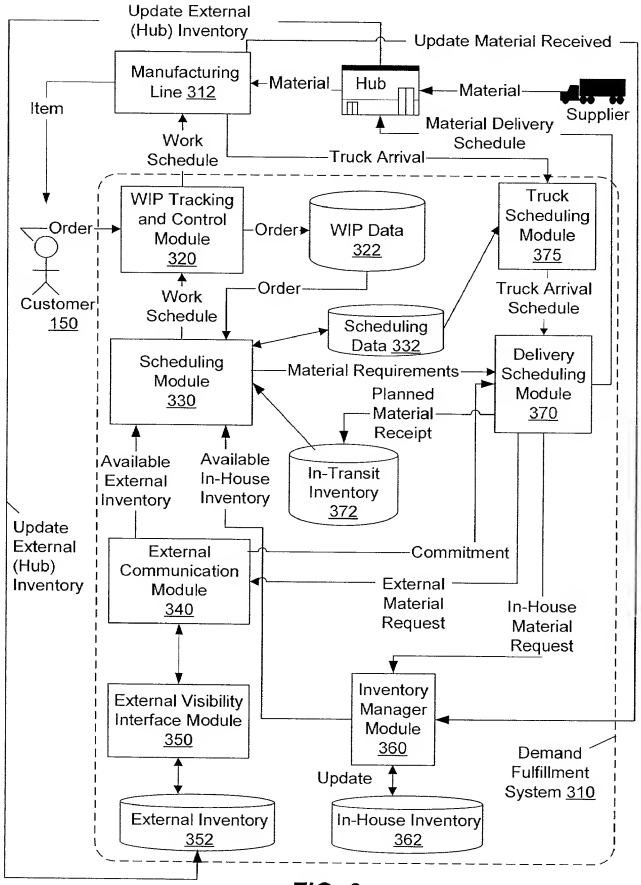
Update External (Hub) Inventory
Update Material Received
Manufacturing Line 312
Material
Hub
Material
Supplier
Item
Material Delivery Schedule
Work Schedule
Truck Arrival
WIP Tracking and Control Module 320
Order
WIP Data 322
Truck Scheduling Module 375
Order
Customer 150
Order
Work Schedule
Truck Arrival Schedule
Scheduling Data 332
Scheduling Module 330
Material Requirements
Delivery Scheduling Module 370
Planned Material Receipt
Available External Inventory
Available In-House Inventory
In-Transit Inventory 372
Update External (Hub) Inventory
External Communication Module 340
Commitment
External Material Request
In-House Material Request
External Visibility Interface Module 350
Inventory Manager Module 360
Demand Fulfillment System 310
Update
External Inventory 352
In-House Inventory 362

FIG. 3

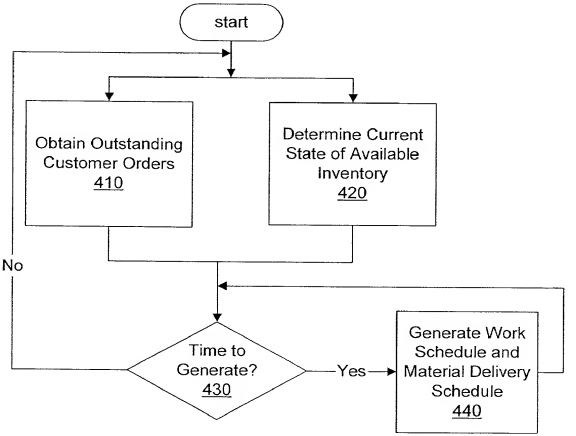
start
Obtain Outstanding Customer Orders 410
Determine Current State of Available Inventory 420
No
Time to Generate? 430
Yes
Generate Work Schedule and Material Delivery Schedule 440

FIG. 4

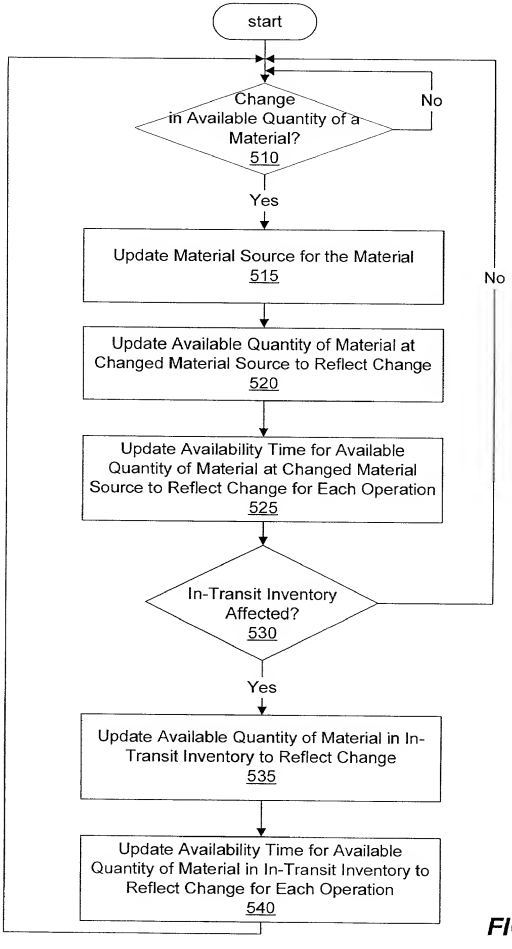
start
Change in Available Quantity of a Material?
510
No
Yes
Update Material Source for the Material
515
Update Available Quantity of Material at Changed Material Source to Reflect Change
520
Update Availability Time for Available Quantity of Material at Changed Material Source to Reflect Change for Each Operation
525
In-Transit Inventory Affected?
530
No
Yes
Update Available Quantity of Material in In-Transit Inventory to Reflect Change
535
Update Availability Time for Available Quantity of Material in In-Transit Inventory to Reflect Change for Each Operation
540

FIG. 5

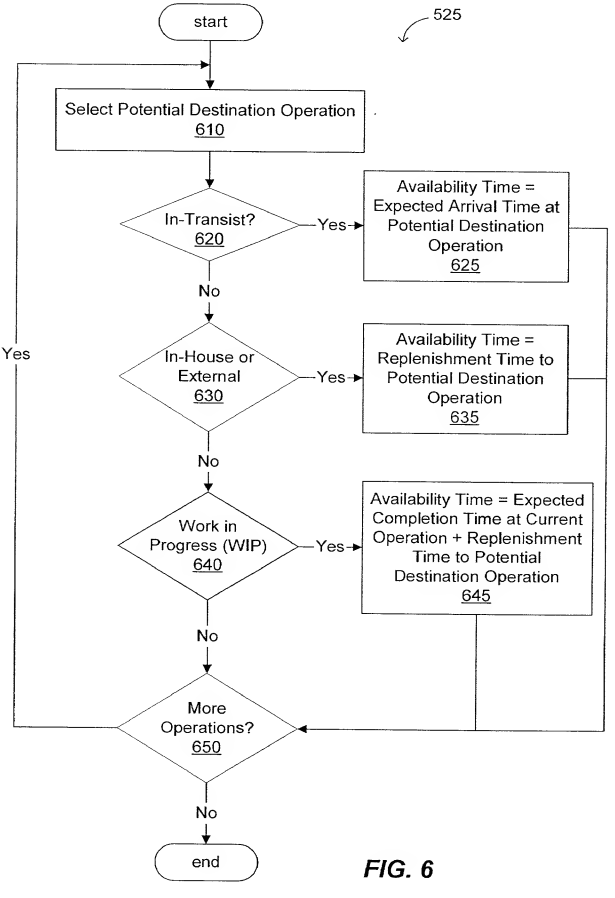
start
525
Select Potential Destination Operation
610
In-Transist?
620
Yes
Availability Time = Expected Arrival Time at Potential Destination Operation
625
No
In-House or External
630
Yes
Availability Time = Replenishment Time to Potential Destination Operation
635
No
Work in Progress (WIP)
640
Yes
Availability Time = Expected Completion Time at Current Operation + Replenishment Time to Potential Destination Operation
645
No
More Operations?
650
Yes
No
end

FIG. 6

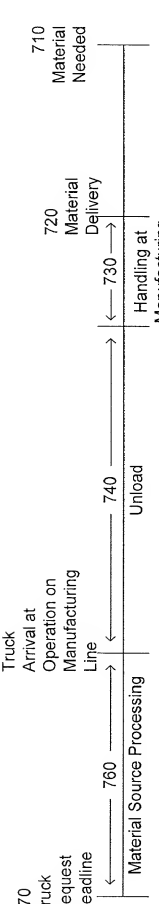
710
Material
Needed
720
Material
Delivery
730
Handling at
Manufacturing
Line
740
Unload
750
Truck
Arrival at
Operation on
Manufacturing
Line
760
Material Source Processing
770
Truck
Request
Deadline
Replenishment Time
780

FIG. 7